UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 9
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SAN FRANCISCO, CA 94103

27 SEP 1990

Mr. Steven Chao
Western Division Naval Facilities
Engineering Command
900 Commodore Drive, Building 101
San Bruno, CA 94066

Dear Mr. Chao:

The Environmental Protection Agency has reviewed the Phase I Characterization Report for Naval Air Station Moffett Field (NASMF) and our comments are enclosed.

As NASMF assesses the data (past and present) for further work and/or operable unit feasibility studies, all data must meet stated data quality objectives and appropriate level of validation. For data that will be used in risk assessment, only validated data that meet strict standards may be used. Protocols for setting data quality objectives and validation can be found in Data Quality Objectives for Remedial Response Activities, OSWER Directive 9355.07B and EPA documents Laboratory Data Validation Functional Quidelines for Evaluating Organic Analysis and Inorganic Analysis, April 1985.

If you have any questions please give me a call at (415) 744-2412.

Sincerely,

Lewis Mitani

Lewis Mitani
Remedial Project Manager

enclosure

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ENCLOSURE (1)
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EPA Comments to Phase I Characterization Report
Naval Air Station Moffett Field

General Comments

1. Risk Assessment

The baseline risk assessment must consider unrestricted land use on Naval Air Station Moffett Field (NASMF). Areas which are currently under restricted access may not have the same restrictions in the future. In addition, EPA and the State expect to return usable groundwaters to their maximum beneficial use. The risk assessment must consider potential future use of groundwater as a potential drinking water supply. The risk assessment should be revised accordingly.

2. Surface Soil Sampling

Near surface soil samples have generally not been collected. The one foot samples which have been collected will not be adequate to address potential transport of contaminated soil through wind erosion processes, or potential ingestion/inhalation/dermal contact with surface soils.

3. Previous Data

The presentation of previous data is neither adequate or consistent throughout the document. At some sites, the locations of previous soil borings, wells etc. are shown. At other sites previous soil boring locations are not shown, even though they are mentioned in the text. In general, the results of previous studies are not presented or compared with the Phase I data. Since one of the objectives of this study is to document the types and concentrations of chemicals present in order to determine the need for additional work, all of the previous data must be presented or summarized in this document. For consistent analyses, previous data will have to meet stated data quality objectives, especially for risk assessment.

4. Phase I Data

All data collected during Phase I is not included in this report. All boring lithologic logs, geophysical logs, and well construction diagrams for Phase I should be incorporated into appendices or text as appropriate.

5. Background

The method used for determination of background levels of soil inorganics is not appropriate. See Section 3 specific comments.

6. Consistent Detections

Throughout the document, a conclusion is made that if contaminants were not "consistently detected (more than 50 percent of the time)" then the results are not indicative of contamination. These statements must be revised throughout the text. Any detection of a non-naturally occurring compound is considered indicative of contamination (unless associated with laboratory or blank contamination). If the data suggests that contamination is no longer present, (for example if the most recent samples were non-detects) then the text and tables should clearly indicate this in order to support the conclusion.

7. Laboratory Contamination

Laboratory contaminants were reported frequently throughout the program. The document sometimes seems to dismiss occurrences of certain "laboratory" contaminants (for example methylene chloride), even when the text suggests that there was no associated method blank contamination. This is not appropriate. EPA protocols for data validation and reporting as presented in the EPA document "Laboratory Data Validation Functional Guidelines For Evaluating Organic Analysis," April 11, 1985, should be reviewed and followed.

8. Summary and Conclusions

If portions of the summary and conclusions presented in section 25 were incorporated into each of the site sections and section 25 was used to more briefly summarize the conclusions, the document would be much more readable.

9. Plume Maps

Basewide groundwater plume maps should be prepared for selected indicator compounds for each aquifer. Plume maps should also be prepared for each site (or group of sites) to demonstrate that extent of contamination has been defined.

10. Ground Water Gradients

Potentiometric maps should be included in the main text for each site or group of sites. At sites where there is insufficient data to construct potentiometric maps, an arrow indicating groundwater flow direction should be added to all figures.

11. Appendices

It would be useful to include at the beginning of each appendix, or wherever appropriate, a summary of analytes requested for each site, since the individual site summaries contained in the appendices report only detections. A list and explanation of the various qualifiers and sample designations should be included in each appendix.

12. Executive Summary

The report needs an executive summary.

Specific Comments

SECTION 1

1.0 Section 1.0, general comments.

A discussion of the Federal Facilities Agreement should be included under Regulatory History. In addition, scheduled dates for completion of the various RI/FS phases should be described and tabulated. Also, a discussion of other on-going activities (removal actions, etc.) should be included in Section 1.0.

2. Section 1.4.5, page 1-10.

The text should describe how the HAR report data will be incorporated into the final RI.

SECTION 2

3. Page 2-4, first sentence.

The range of depth of the geophysical borings should be revised to reflect values shown in the table (GB-1 and GB-2 were less than 200 feet).

4. Page 2-11, second paragraph.

It is unclear why the October 1989 monthly data are the most recent data included in this report. If there was a cutoff date for the Phase I report it should be mentioned in Section 1. It should then also be noted that ongoing monitoring is reported in the quarterly reports for eventual inclusion in the final RI.

5. Page 2-12, section 2.3.9.

The dates of the sampling rounds should be included in a table or in the text.

6. Page 2-13, section 2.3.10.

This section should reference the appropriate table or appendix where the survey information can be found.

SECTION 3

7. Page 3-1, last paragraph.

This paragraph seems to be the only reference to surface water run-off in the section. A more complete description of station wide surface water drainage is needed to understand surface water drainage. Surface water samples were collected at some of the sites but it is unclear overall how run-off is handled at NASMF. A figure which shows storm drains, ditches, canals, pump stations, etc. is needed.

8. Page 3-3, last paragraph.

The statistical method used to estimate background or ambient levels is inappropriate. Values below detection are an integral part of the normal expected range and can not be dismissed. A common procedure for including these data is to assume that non detects are equal to one half the detection limit value. Also, since samples collected at NASMF were all intended to evaluate potential contamination, they can not be assumed to represent ambient conditions. Since all samples, contaminated or otherwise, have been included in the calculations, the data are biased and unusable for determination of background. Onsite background data should be collected and the existing data reviewed using a more appropriate statistical approach. This paragraph must be revised accordingly.

9. Page 3-10, section 3.4.2.

This section should include figures which show station wide water level contours for each of the aquifers. Also, a discussion of horizontal gradients for each aquifer, and vertical gradients between each of the aquifers should be added.

10. Page 3-15.

Piper or Stiff diagrams might be useful to show general water quality of the different aquifers or the effects of sea water intrusion, etc.

SECTION 4 (site 1)

11. General comment.

The presentation of chemical data is difficult to follow in this section. A table should be added which summarizes the site 1 wells, and their completion intervals. The statistical summary tables are interesting but can not be used to find specific results. The number of samples, and the wells they were collected from are also not listed. It appears that more than one type of sample may have been included in some of the tables. For example, were sediment samples included in the table summarizing boring results, and are surface water samples included with the ground water samples? The appendices have the specific results, but also include duplicates, trip blanks, method spikes?, and field blanks. The appendices do not include an explanation of the various qualifiers and sample designations. The tables in the text report that split samples are reported, but that duplicate samples are not. The number of splits included in the data base is not reported, nor is there any discussion of splits or duplicates in the text or appendices. The figures generally show the location of earlier wells and borings (ESA), but the results of earlier investigations are not presented. It is unknown if these previous results are in agreement with the current study. Near surface soil samples, necessary to perform the baseline risk assessment, have not been collected. All the above items need to be clarified. Section 4 needs to be revised accordingly.

12. Page 4-1, last paragraph.

The text does not clearly indicate the portion of the landfill which has been covered, or the source of that cover, if known. Figure 2.2-1 suggests that only a portion of the landfill has been covered. Additional discussion is necessary.

13. Page 4-5, first paragraph.

The pumping station does not appear to be located on any figure. Also, has the purpose of the pumping been discussed?

14. Page 4-5, second paragraph, first sentence.

The three borings drilled at site 1 do not appear to have been used for geophysical information. Is this a typo? Also, only two borings are shown on the figure and described in the text.

15. Page 4-5, fourth paragraph.

The discussion of the results of SB1-1 and SB1-2 is confusing. Did SB1-1 encounter fill? The reader would infer that fill was present to a depth of 20 feet. This suggests the outline of the area of refuse fill on Figure 4.2-5 is incorrect. Boring SB1-2 encountered only fill (and methane) to a depth of about 26 feet, yet on Figure 4.2-5 the outline of the landfill refuse does not include SB1-2. Assuming that more than 15 feet of fill is present at SB1-2, the limits of fill are not well defined.

16. Page 4-6, first paragraph.

Tests were performed at nine monitoring well locations and on two embankment samples, for a total of eleven samples, according to the text. Table 4.3-1 shows only eight wells, and the text reports twelve tests. Please correct the discrepancy.

17. Page 4-6, second paragraph, fourth sentence.

Appendix A does not contain 45 analyses for soil samples from site 1.

18. Page 4-6, section 4.2.6, second paragraph, second sentence.

Appendix A is not the correct reference here.

19. Page 4-6, section 4.2.7, second sentence.

Appendix B is not the correct reference here.

20. Page 4-8, section 4.3.2.

This section should describe what flood control measures, if any, are in place at the landfill. This area is described earlier as being subject to occasional floods.

21. Page 4-10, second paragraph, last sentence.

Since this RI report summarizes work to date, the logs of all wells and borings should be included as an appendix to this report.

22. Page 4-11, section 4.4.2, general comment.

The soil borings and wells drilled by previous contractors are shown on figures but the results of the previous work is not discussed or included in the appendices. This document should include discussion of previous data.

23. Page 4-11, last paragraph.

The section on surface water should reference a table where results are tabulated. All surface water data could be shown on one table, since there are limited data.

24. Page 4-19, second paragraph.

The table referenced in this paragraph do not appear to show results from sediment samples. Sediment data could be shown on a separate table, since there are only four samples.

25. Page 4-25, last paragraph.

This paragraph should indicate how many samples were collected from each well.

26. Page 4-27, last paragraph.

The lack of consistent detections and the variability in concentrations from sample to sample in each well is not clearly shown on the tables or discussed in the text.

SECTION 5 (site 2)

27. Page 5-4, section 5.2.2.

All Phase I boring logs and geophysical logs should be included in appendices to this report.

28. Page 5-4, section 5.2.3.

The twelve soil borings are not shown on any figure. If this number includes borings that were converted to monitoring wells, the text needs to be clarified.

29. Page 5-4, section 5.2.4.

Well construction details and boring logs for Phase I wells should be included in appendices to this report.

30. Page 5-7, section 5.3.2.

The surface water drainage described in this section should be shown on a figure with the drainage ditches, canal, and pumping station.

31. Page 5-7, section 5.3.2.

This section should describe what flood control measures, if any, are in place at this landfill. This area has been described previously as prone to flooding.

32. Page 5-12, second paragraph.

The presentation of data in this section is confusing. For example, the second paragraph reports that 13 groundwater samples (including one duplicate) were analyzed. Table 5.4-5 shows that some compounds were detected as many as 23 times. Figure 5.3-1 shows only eleven wells. The next to last paragraph on this page makes reference to five sampling rounds. Please correct this confusion. See general comments for section 4.

33. Page 5-12.

The fourth paragraph reports that vinyl chloride was detected only from one sample at well W2-08F. Table 5.4-6 shows that vinyl chloride was detected five times.

34. Page 5-12, next to last paragraph, last sentence.

This paragraph states that vinyl chloride was not confirmed in any of the other five rounds. Appendix D reports that vinyl chloride was consistently detected at significant concentrations in well W2-08F.

35. Page 5-13.

A figure showing sample locations should be referenced.

SECTION 6 (site 3)

36. Page 6-1, section 6.1.

The storm drain lines and small ditches which drain into marriage road ditch, both past and present, should be shown.

37. Page 6-2, section 6.2.3.

The soil borings do not appear to be shown on any figure.

38. Page 6-3, section 6.2.6.

The text does not indicate which wells were sampled. This is also not presented in section 6.4.2 (review of analysis). The appendices are also sometimes confusing. For example, the appendices report results for a trip blank (page 3.1.6, appendix D) that was collected for well W03-06(A1). However, there are no sample results for that well. Please clarify.

39. Page 6-6, next to last paragraph.

A figure illustrating potentiometric surfaces of the different aquifers should be included. Vertical and horizontal gradients should be discussed.

40. Page 6-11, first paragraph.

The status of tank 53 should be reviewed and summarized in the text. Could it be a source of contamination?

41. Page 6-11, last paragraph.

This paragraph concludes that contamination at site 3 is from a plume encroaching from site 7. (Page 6-6 states that the plume is from sites 4, 6, and 7). Please show the plume, to the extent known, on a figure.

SECTION 7 (site 4)

42. Page 7-4, first paragraph.

Marriage Road and Macon Road should be identified on the figure.

43. Page 7-6, first paragraph.

The transmissivities for each aquifer should be indicated.

44. Page 7-6.

A potentiometric map should be include in this section. At the minimum, the figures should show groundwater flow direction.

45. Page 7-8, fifth paragraph.

It is unclear why certain wells were excluded from sampling, e.g. wells W4-01, and W4-05. Please explain.

46. Page 7-8, fifth paragraph.

Well W4-09(B3) is shown on the figure as a B2 well.

47. Page 7-9, second paragraph.

There is no information presented which would support the statement that the source is upgradient. Tank 43 is not shown on the figure, nor is site 7. Groundwater flow direction is not shown.

SECTION 8 (site 5)

48. Page 8-1, second paragraph.

The location of the open vertical pipes should be shown on the figures.

49. Page 8-1, third paragraph

Tanks should be shown and clearly labeled. Also the text should indicate if the area is paved or open ground.

50. Page 8-8, second paragraph.

The surface water flow is not clear. The storm drains at site 17 are not shown. Patrol Road is not indicated on the figure.

51. Page 8-8, last paragraph.

A potentiometric map should be included in this section, or at a minimum, groundwater flow direction should be shown on the figures.

52. Page 8-9, third paragraph.

The fuel station described in this paragraph should be indicated on a figure.

53. Page 8-9, next to last paragraph.

The previous results should be presented in more detail. Which wells contained organics? What results were obtained from the same wells in the most recent sampling?

54. Page 8-13, general comment.

The presentation of the soil gas results is not clear. The location of tanks and spill areas should be clearly shown in relation to the soil gas points and results. There are no conclusions made from the soil gas work. What will the data be used for?

55. Page 8-17, last paragraph.

As indicated on the figures, several of the highest soil gas readings were in areas which are not currently monitored by wells. The extent of contamination has not been defined. Also, the text does not indicate if the surface is paved in the area of the site and tanks. If the area is not paved, surface soil samples should be collected. The summary statement should be expanded to recognize this information.

SECTION 10 (site 7)

56. Page 10-1, second paragraph.

A significant amount of work has been performed by previous contractors. As stated in the first sentence in this paragraph "the purpose of the investigation...is to characterize the chemical occurrences which have been identified". In order to accomplish this the previously collected data needs to be presented and reviewed (See also general comment 3). Please incorporate the data into this document and show the location (for example the 21 borings identified in this paragraph) on a figure.

57. Page 10-9, fourth paragraph.

Not all site wells were sampled. For example, wells 6,7,9,10,11,12, and 14 were apparently not sampled. The text should include an explanation for not sampling these wells. Also well 16 is referred to as a C well in the text and a B4 well on the figures.

58. Page 10-10, fourth paragraph.

The statement regarding Di-n-octylphthalate is inconclusive. What well was it found in? During what round? Were there subsequent rounds that were ND?

59. Page 10-11.

This document is missing page 10-11 and any subsequent pages in this section.

SECTION 11 (site 8)

60. Page 11-4, last paragraph.

The drainage ditch should be added to figure 11.1-1.

61. Page 11-6, section 11.4, general comment.

Surface contamination does not appear to have been characterized at this site since the shallowest samples were collected at one foot.

SECTION 12 (site 9)

No comments.

SECTION 13 (site 10)

62. Page 13-1, first two paragraphs.

It is difficult to determine from this discussion what comprises site 10. Perhaps all the sites (14,15,16,18) included on the figure should be clearly marked as well as the site 10 area.

63. Page 13-2, third paragraph.

The reason for the location and number of monitoring wells should be discussed. Site 10 appears to be a very large area, but has only a limited number of monitoring wells. As presented, there appears to be a number of data gaps in the site 10 investigation.

64. Page 13-8, first sentence.

All run-off pathways should be shown and described. Please modify the text and figures.

65. Page 13-8, second paragraph.

The ESA wells described in this paragraph are shown as IT wells on the figure. Hangers 2 and 3 are not identified. It is unclear that the wells have been correctly located to monitor those potential sources.

SECTION 14 (site 11)

66. Page 14-2, last paragraph.

The text should discuss potential surface water run-off from the stained area (if any).

67. Page 14-3, next to last paragraph.

Ground water flow directions should be shown on the figures.

68. Page 14-4, section 14.4.2, general comment.

The text refers several times to soil samples collected at a depth of 0.5 foot. The tables show only 1 foot samples, and the text (page 14-4, fourth paragraph) states that samples were collected at the 1 foot. The figure does not indicate which samples were collected at the shallower level. Please clarify. It appears that surface soil samples to support the baseline risk assessment have not been collected.

SECTION 15 (site 12)

69. Page 15-6, last sentence.

The conclusions regarding site soil contamination do not reflect actual site conditions. Several data gaps have not been addressed in the work performed to date. There have been no soil samples collected within the fire training pit, thus the extent of contamination is unknown. There have been no surface soil samples collected to support the baseline risk assessment. In addition, dioxin samples have apparently only been collected from the 3 foot depth. The surface and near surface samples should have been analyzed for dioxins. This section and section 25 should be revised to reflect these data gaps, and additional work planned for the Phase II study. If the additional work is being performed by another contractor, this should be clearly presented in the text.

SECTION 16 (site 13)

No comments.

SECTION 17 (site 14)

70. Page 17-1, first two paragraphs.

Figures 17.1-1 and 17.1-2 do not have any features in common, making it difficult to determine how the two parts of site 14 are related. A more regional location map or inset is needed.

71. Page 17-3, fourth paragraph.

Surface water features should be described, since page 17-1 notes that the surface is heavily stained. Where would the run-off be directed?

72. Page 17-7, fifth paragraph. The conclusions from the soil gas investigation do not seem to be supported by the data presented. Since toluene was present, a conclusion could be made that the plume extents from the tank area to the survey area. This should be clarified.

SECTION 18 (site 15)

No comments.

SECTION 19 (site 16)

No comments.

SECTION 20 (site 17)

No comments.

SECTION 21 (site 18)

No comments.

SECTION 22 (site 19)

73. Page 22-1.

An insert map to show the location of the area on Figure 22.1-2 in relation to the rest of the site and other features on NASMF would be helpful.

74. Page 22-4, third paragraph.

The report summarizing the aquifer test should be referenced.

SECTION 23

75. Page 23-3, general comment.

It should be noted in the text that the Karickhoff equation is only one of several methods which are available to estimate the Koc based on the Kow. Also the formula for calculating retardation value should be checked against the literature. The n should be effective porosity, thus the value for n at the bottom of the page is too large.

76. Page 23-8, section 23.3.

The text should identify the flow model which will be used, or indicate if the models listed are both flow and transport codes.

SECTION 24

77. Page 24-9, third paragraph.

A figure showing land use should be referenced in this section.

78. Page 24-9, section 24.3.1.1.

Future land use on NASMF should be discussed.

79. Page 24-15.

All discussions of potential pathways must consider unrestricted land use on NASMF.

80. Page 24-15 through 24-21, general comment.

These sections on potential use of NASMF groundwater and potential ARARs should be revised. Although the likelihood of using groundwater from the aquifers beneath NASMF may seem low, State and Federal regulations, resolutions, and guidance emphasize that almost all water bodies are potential drinking water sources (except where high total dissolved solids or low yields are present). EPA's policy is that if a water body has a beneficial use as a drinking water source, drinking water standards apply and therefore are potential ARARs.

SECTION 25

81. Page 25-4, first paragraph.

Restricted access must not be considered in the baseline risk assessment. Institutional controls currently in place may not apply in the future. The exposure pathway analysis should be revised accordingly.

82. Page 25-4, second paragraph, first sentence.

EPA and the State expects to return usable groundwaters to their maximum beneficial use. The risk assessment should consider potential future use of groundwaters as a domestic water source. The exposure pathway analysis and risk assessment should be revised accordingly.

83. Page 25-16, last paragraph.

A short summary of the planned phase II work should be added to this paragraph.

84. Page 25-29.

Additional work to define the extent of inorganic contamination is necessary and should be described.

85. Page 25-34, last paragraph.

The recommendations for site 19 in this section are not consistent with the recommendations presented in Section 22. Page 22-9 states that additional investigation is planned in the tank 43 area. Page 25-34 states that no additional work is planned. This should be clarified.